

TRANSIT ASSET MANAGEMENT MANUAL - OVERVIEW

State of Good Repair Roundtable Philadelphia, PA July 17, 2012





Presentation Topics

- Manual Overview
- Transit Asset Management in Context
- Transit Asset Management Framework
- Transit Asset Management Implementation
- Q&A



Manual Overview



Manual Objectives

- Designed to increase the awareness and improve the practice of asset management in the US transit industry
- Provides a transit agency—specific application of asset management concepts, processes, and tools
- Supports an agency's drive to increase the maturity of asset management practice
- Provides tools and resources for agency managers and practitioners across the country



Manual Organization

- Introduces key asset management concepts
- Presents an asset management framework and business model that define and communicate "best practice"
- Provides guidance that can be used to prepare and implement transit asset management plans
- Includes tools and case studies that can support asset management planning and implementation



Transit Asset Management Manual Chapters

1. Preface and Guide Introduction

Provides reader with the purpose, structure, and sources of this document. Additionally, it helps the reader navigate to the sections most useful to them.

2. Introducing Transit Asset Management

Provides reader with a framework and a "visual" of a highly-functioning asset management transit agency. Defines transit asset management and outlines expected benefits and outcomes.

3. Asset Management Framework Business Processes

For each process outlined in the framework, this chapter provides: how to and best practice guidance, key implementation activities and challenges, and peer examples.

4. Asset Management Information Systems

Describes the use of asset management information systems, and summarizes the implementation principles associated with these tools.

5. Asset Class-Specific Information

For each major asset class, this chapter outlines lifecycle management considerations and "best practices."

6. Implementation Guidance

Provides guidance on planning for and implementing change that improves an agency's asset management practices. It introduces key implementation concepts, provides an agency self-assessment for determining the agency's maturity baseline, and outlines potential implementation paths for incorporating into the agency's business plan.



Transit-Specific Asset Management Planning Application

Asset
Management
Guides

• PAS55

(British Standards Institute)

- International Infrastructure Management Manual (New Zealand Asset Management Support)
- ISO 55001 asset management committee (International Org. for Standardization)
- AASHTO Transportation Asset
 Management Guide: Volume 2
 A Focus on Implementation

Industry Best Practices

Transit Asset Management Guidance

Transit Application

- Business objectives: Reliability, safety, and customer satisfaction
- Systems: Assets are interconnected
- Level of service dependent on unique portfolio of asset classes and systems
- Stakeholders: Varying interests and knowledge
- Governance and related business requirements



Project Approach

1. Research Best Practices

Jun - May

2. Develop Best Practice Business Model

Jul- Nov

3. Develop Implementation Framework

Nov-May

4. Develop Guidance & Training

Apr-Jul

Partner agency collaboration

Obtain industry feedback



Transit Asset Management in Context

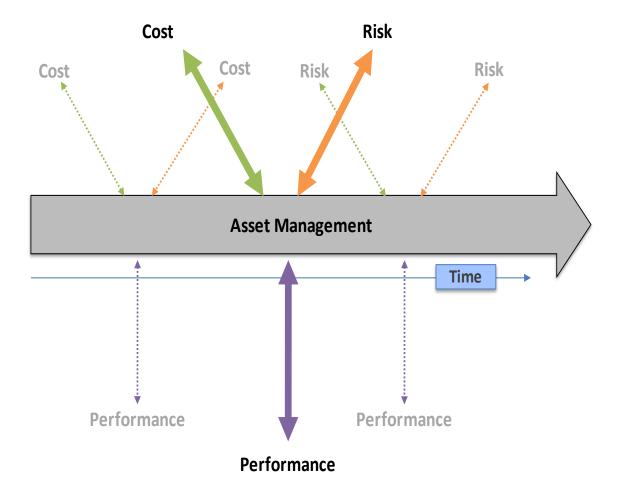


Transit Asset Management Defined

Transit asset management is a strategic and systematic process through which an organization procures, operates, maintains, rehabilitates, and replaces transit assets to manage their performance, risks, and costs over their lifecycle to provide cost-effective, reliable, and safe service to current and future customers.



Transit Asset Management – Managing Cost, Risk, and Performance across the Lifecycle





Key Component of Agency Strategic Management





Transit Asset Management Agency Benefits

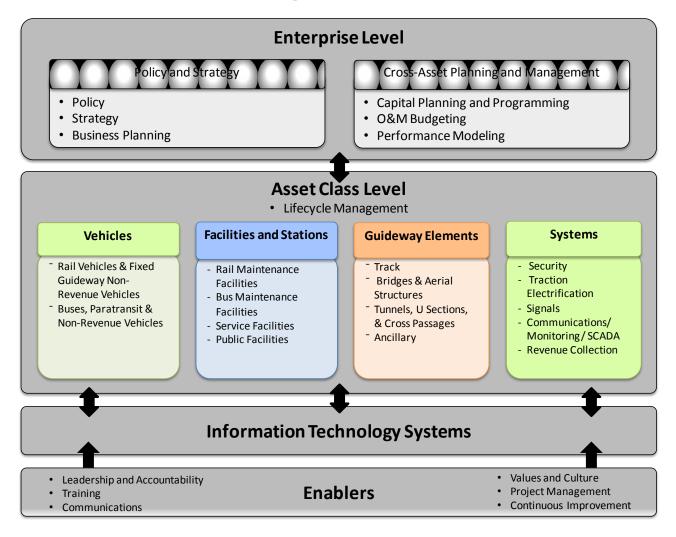
Transit Agency Business Benefits	Asset Management Approach
Improve customer service	 Improves on-time performance and service operations, vehicle and facility cleanliness; reduces missed trips, slow orders, and station shutdowns Focuses investments around customer-driven goals and metrics
Improve productivity and reduce costs	 Maintains assets more effectively, using condition-based approaches and using predictive and preventive maintenance strategies (where these can be employed) to reduce costs while improving service delivery
Optimized resource allocation	Better aligns spending with the agency's goals and objectives to obtain the greatest return from limited funds
	Incorporates lifecycle cost, risk, and performance trade-offs into capital programming and operations & maintenance budgeting
Improved stakeholder communications	Provides stakeholders with more accurate and timely customer-driven performance indicators
	Provides tools to communicate forecasted performance metrics (including level of service) based on different levels of funding



Transit Asset Management Framework Overview



Draft Transit Asset Management Framework





Asset Management Framework Business Processes

Asset Management Policy and Strategy

Policy

- Confirms agency's commitment to asset management and continual improvement
- Provides top-down direction regarding expectations and mandatory requirements

Strategy

- Provides approach to addressing policy
- Includes goals, objectives, and performance expectations of asset management

Business Planning

- Provides approach to addressing strategy
- Outlines asset management roles and responsibilities, implementation approach, resources, & timeline

Lifecycle Management

Inventory

- Provides asset repository in a hierarchy that supports the asset management strategy
- Requires data ownership and established data maintenance process

Condition Assessment and Performance Monitoring

- Outlines condition inspection and measurement approach for asset classes
- Addresses risk and ensures assets can meet their performance requirements

Lifecycle Management Planning

- Specifies asset class-specific activities that consider costs, performance, risks of asset class throughout its lifecycle
- Includes performance requirements, condition assessment approach, preventive maintenance activities, etc.

Cross-Asset Planning and Management

Capital Planning and Programming

- Optimizes how and when capital funds are expended based on consistent, reliable data
- Reflects "top-down" guidance from agency leaders and "bottom-up" forecasted capital needs from agency staff

O&M Budgeting

- Optimizes how and when O&M funds are expended based on the agency's level of service goals
- •Relies on performance-based decisionmaking reflecting input from the lifecycle management plans

Performance Modeling

 Applies analytical tools that use reliable condition and cost data to model asset performance under different investment scenarios

Information Technology Systems

- Leadership and Accountability
- Training
- Communications

Enablers

- Values and Culture
- Project Management
- · Continuous Improvement



Asset Class Hierarchy

Vehicles

Rail Vehicles & Fixed Guideway Non-Revenue Vehicles

Buses, Paratransit & Non-Revenue Vehicles

Facilities & Stations

Rail Maintenance Facilities

Bus Maintenance Facilities

Service Facilities

Stations

Guideway Elements

Track

Bridges

Tunnels

Ancillary Structures

Systems

Security

Traction Electrification Systems

Signals/Automatic Train Control

Communications/ Monitoring/SCADA

Revenue Collection



Asset Class Example: Maintenance Facilities

- Definition: refers to the structures used for maintaining all revenue vehicles
- Lifecycle Management Considerations:
 - Design: Consider on-site circulation of work processes when designing facility to make work flow more efficient and reduce accidents
 - Preventative Maintenance: When possible, utilize a maintenance management system for tracking facility maintenance requirements and proper intervals
 - Capital Rehabilitation/Replacement: Replace all lighting and plumbing fixtures in building (likely at one time)
 - Disposal: Consider re-sale opportunities of equipment
- Condition Assessment and Performance Monitoring:
 - Monitor lumen output every 2 years to check for lighting levels
 - Monitor air changes per hour on a continuous basis



Asset Class Example: Maintenance Facilities (cont.)

Sustainability Considerations

Sustainability Considerations	Benefits	Explanation
Renewable Energy	Cost savings, GHG	Renewable energy options with utility provider, independent power provider with proposed energy source (e.g., wind farm, concentrated solar, photovoltaic)
Healthy materials	Customer and employee healthy	No volatile organic compounds (VOC), formaldehydes, or other toxic materials

Performance Metrics

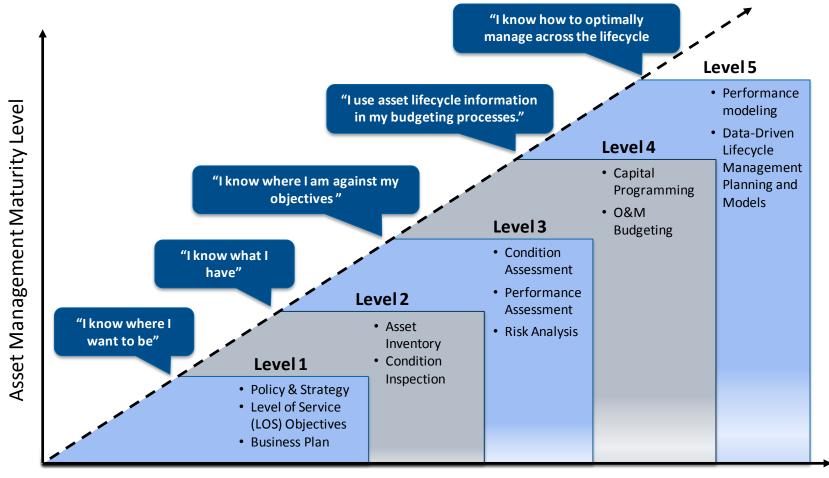
Asset Class	Condition/Structural Assessment Metrics	Performance Metrics
Bus and Rail Facilities	 Energy efficiency, which can be measured by the billing costs of electricity, water, gas, and garbage. 	 Availability Safety (days without incident, # of workers comp claims)
	 Effective facility management may be measured by the costs of maintenance and replacement of assets. 	 Compliance with preventive facility maintenance program Employee satisfaction On-time performance (indirectly)



Transit Asset Management Implementation



Asset Management Maturity



Asset Management Elements



Implementation Activities

Prepare for Implementation

- Assess awareness
- Consider enablers
- Establish leadership and accountability

Assess Agency Maturity

- Determine baseline
- Communicate baseline
- Determine target

Develop Business Plan

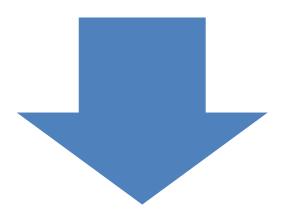
- Develop business case
- Decide on implementation path
- Outline key activities
- Outline roles and responsibilities

Manage Implementation

- Develop communications strategy
- Develop information systems strategy
- Develop performance management strategy



Organization/Leadership Concept

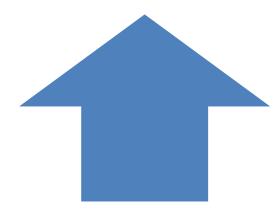


Top-Down Approach:

Leadership provides strategic direction, sets expectations, empowers managers, and allocates resources

Bottom-Up Approach:

Middle management and staff implement and improve upon the asset management initiative



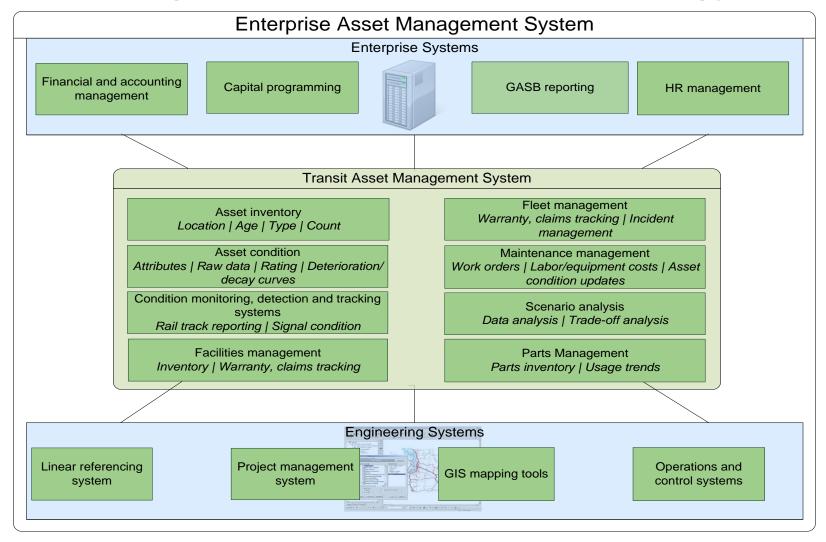


Key Asset Management Roles

Roles	Responsibilities	
Board Members	Approves the asset management policies, strategy, and business plan Provides overall accountability	
GM/C.E.O.	Establishes the goals, policies, and level of service requirements for the organization Dedicates appropriate resources Provides leadership needed to drive change Enforces strong accountability measures	
Program Manager	Leads development and implementation of AM Business Plan Leads AM Steering Committee Communicates to internal and external stakeholders	
Steering Committee	Responsible for developing and sharing AM best practices throughout organization	
Asset Owners	Leads development and implementation of asset-specific lifecycle management plans	
Department Heads	Ensures all line staff understand how their job supports AM strategy	
Line Staff	As the key asset management business plan implementers, these individuals should conduct day-to-day responsibilities with an understanding of how they support the AM strategy	

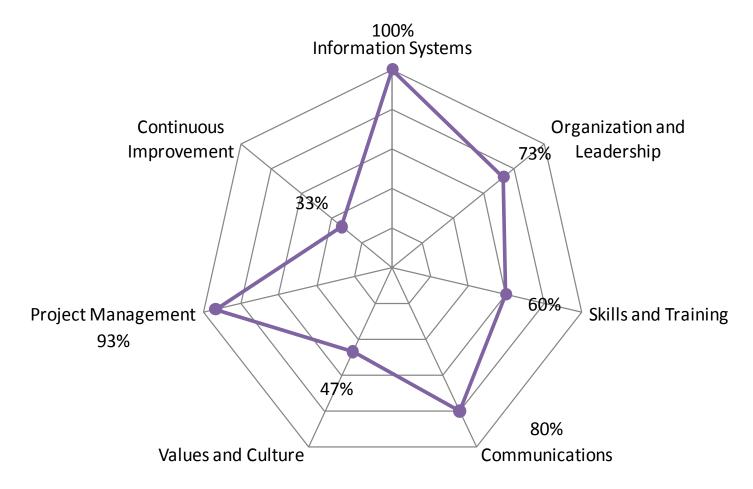


Asset Management and Information Technology



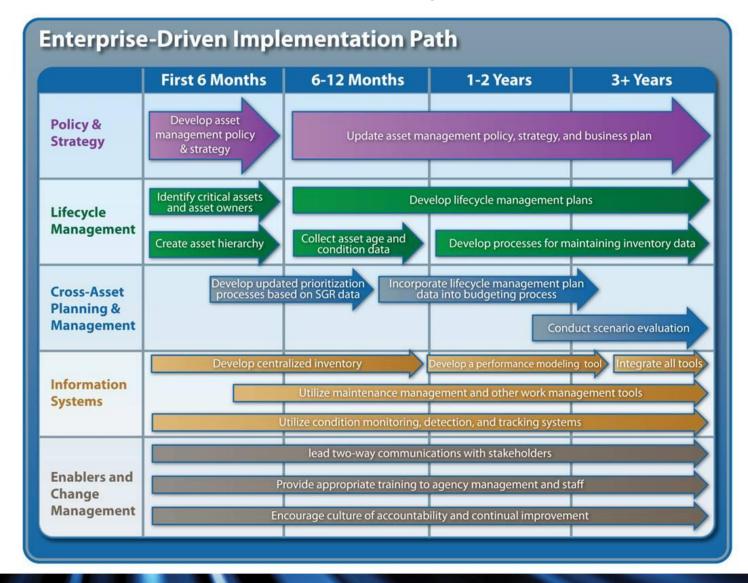


Transit Asset Management Maturity Agency Self-Assessment Sample Output



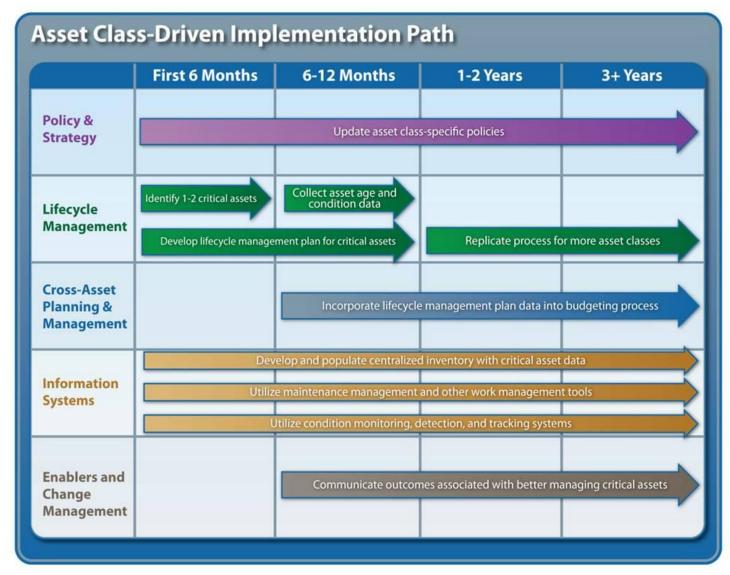


Implementation Path #1: Enterprise-Driven



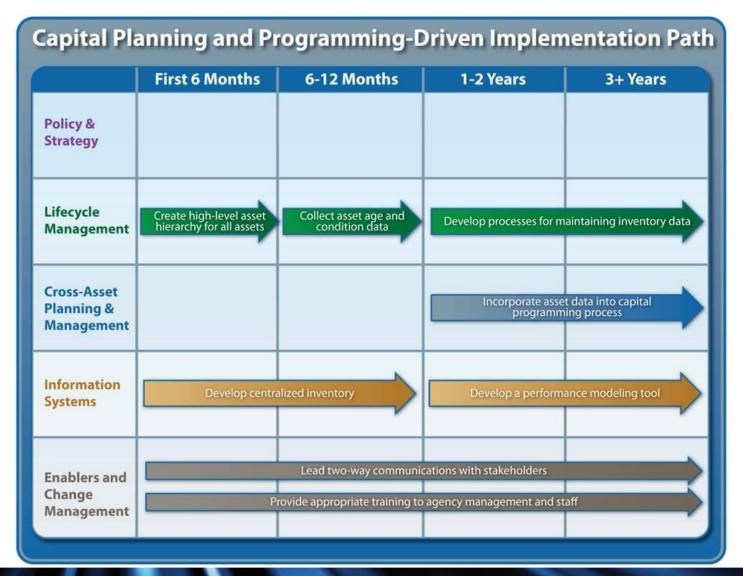


Implementation Path #2: Asset Class-Driven





Implementation Path #3: Capital-Driven





Next Steps



Status and Next Steps

- Chapters 1 through 4 and Chapter 6 in draft final and ready to publish
- Chapter 5 asset class specific undergoing further technical input will be complete and ready for review this month
- Prepare for training and roll out



Questions? Comments?

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